

1 Amendments to the Claims:

2 This listing of claims will replace all prior versions, and
3 listings, of claims in the application using (Original) (Currently
4 Amended) (New) (Canceled) nomenclature, as recited in the below
5 listing of claims.

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7 1. (Currently Amended) A method for retrieving from a destination
8 web content data specified by a source at a source internet
9 protocol address (IPA) and corresponding to a uniform resource
10 locator (URL) associated with a web server, the method comprising
11 the steps of,

12 ~~destination IPA~~ storing at a proximal IPA in a forwarding
13 table a destination IPA,

14 ~~destination URL identifier~~ storing at the proximal IPA in the
15 forwarding table a destination URL identifier for identifying the
16 web content data, the destination URL identifier is stored in the
17 forwarding table in reference to the destination IPA,

18 receiving from the source a source URL identifier,

19 matching the source URL identifier to the destination URL
20 identifier,

21 cross referencing at the proximal IPA in the forwarding table the
22 stored destination URL identifier with the destination IPA,

23 ~~destination URL identifier~~ transmitting the destination URL
24 identifier to the destination at the destination IPA, and
25 transmitting from the destination at the destination IPA the web
26 content data to retrieve the web content data from the destination.

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1 2. (Original) The method of claim 1 wherein,
2 the destination is a distal web cache,
3 the source is a user browser at a source IPA,
4 the source URL identifier is an exact URL,
5 the proximal IPA is an IPA of a proximal web cache,
6 the distal web cache transmits the web content data to the source
7 at the source IPA,
8 the method further comprising the steps of
9 receiving the source IPA at the proximal web cache, and
10 transmitting the source IPA to the distal web cache, the
11 distal cache transmitting the web content data to the user browser.
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13 3. (Original) The method of claim 1 wherein,
14 the destination is a distal web cache,
15 the destination IPA is a distal web cache IPA
16 the source is a user browser at a source IPA,
17 the source URL identifier is an exact URL,
18 the destination URL identifier is an encoded URL,
19 the proximal IPA is an IPA of a proximal web cache,
20 the distal web cache transmits the web content data to the proximal
21 web cache,
22 the method further comprising the steps of
23 receiving the source IPA at the proximal web cache,
24 transmitting the proximal IPA to the distal web cache,
25 receiving from the distal web cache the web content data at
26 the proximal web cache, and
27 transmitting the web content data from the proximal web cache
28 to the user browser at the source IPA.

1 4. (Original) The method of claim 1 wherein the destination URL
2 identifier in the forwarding table is a series of compression codes
3 corresponding to respective linked segments of the URL, each of the
4 linked segments corresponding to one or more components of the URL
5 to decompose the URL into the linked segments, the linked segments
6 are linked by parental pointers from a first linked segment having
7 no parental pointer through remaining linked segments having
8 respective parental pointers to a preceding one of the linked
9 segments to a last linked segment reference to the destination IPA.

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13 5. (Original) The method of claim 4 wherein
14 the destination URL identifier references the URL comprising
15 scheme, name, path and type components and delimiters,
16 the linked segments correspond to successive concatenated
17 components of the URL and are respectively referenced to one or
18 more of the successive concatenated components of the URL,
19 each of the compression codes are referenced to the linked segments
20 and to the one or more successive concatenated components through
21 pointers for respectively cross referencing the compression codes
22 to the linked segments, and
23 the destination IPA is referenced to the destination URL identifier
24 when the all of the respective compression codes through the
25 respective pointers point to a complete set of linked segments from
26 the first linked segment to the last linked segment.

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1 6. (Original) The method of claim 5 wherein,
2 the proximal IPA becomes a new source IPA as the destination
3 IPA becomes a new proximal IPA communicating the destination URL
4 identifier to a new destination IPA all of which occurring a
5 plurality of times for indicating a number of hops from the
6 proximal IPA to a last one of a respective plurality of new
7 destination IPAs, the last one of the respective plurality of new
8 destination IPA distally storing the web content data, and
9 the last linked segment is further referenced to a distance metric
10 indicating a number of hops through the new destination IPAs from
11 the proximal IPA.

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13 7. (Original) The method of claim 1 wherein,
14 the destination stores a set of web content data one of which is
15 the web content data, the set of web content data corresponding to
16 a wildcard URL for indicating a set of URLs one of which is the
17 URL,
18 the destination URL identifier is a wildcard URL identifier,
19 the source URL identifier is an exact URL having a plurality of URL
20 components a first of portion of which serving as a prefix to a
21 remaining portion of the exact URL, and
22 the matching step is a prefix matching step for matching the first
23 portion of the URL components of the exact URL to the wildcard URL
24 identifier in the forwarding table.

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1 8. (Original) The method of claim 7 wherein
2 the prefix matching step is a longest prefix matching step serving
3 to match the longest first portion of the URL components of the
4 exact URL to the wildcard URL among a plurality of wildcard URLs
5 matching a shorter first portion of the URL components of the exact
6 URL.

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8 9. (Currently Amended) A method for retrieving from a distal cache
9 web content data specified by a user browser at a source internet
10 protocol address (IPA) and corresponding to a uniform resource
11 locator (URL) associated with a web server, the method comprising
12 the steps of,

13 ~~distal~~ IPA storing at a proximal IPA in a forwarding table a
14 distal IPA,

15 ~~distal URL identifier~~ storing at the proximal IPA in the
16 forwarding table a distal URL identifier for identifying the web
17 content data, the distal URL identifier is stored in the forwarding
18 table in reference to the distal IPA,

19 receiving from the user browser a source URL identifier,
20 matching the source URL identifier to the distal URL
21 identifier,

22 cross referencing at the proximal IPA in the forwarding table the
23 stored distal URL identifier with the distal IPA,

24 ~~distal URL identifier~~ transmitting the distal URL identifier
25 to the distal destination at the destination IPA, and
26 transmitting from the distal cache at the distal IPA the web
27 content data to retrieve the web content data from the distal web
28 cache.

1 10. (Original) The method of claim 9 wherein the web content data
2 is transmitted from the distal cache to the user browser during the
3 transmitting step.

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5 11. (Original) The method of claim 9 wherein,
6 the proximal IPA is a location of a proximal cache,
7 the web content data is transmitted from the distal cache to
8 the proximal cache during the transmitting step, and
9 the web content data is further transmitted from the proximal
10 cache to the user browser during the transmitting step.

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12. (Currently Amended) A method for retrieving from a distal web
cache web content data specified by a user browser at a source
internet protocol address (IPA) and corresponding to a uniform
resource locator (URL) associated with a web server, the method
comprising the steps of,
 ~~destination~~ IPA storing at a proximal IPA in a forwarding
table a distal IPA,
 ~~distal URL identifier~~ storing at the proximal IPA in the
forwarding table a distal URL identifier for identifying the web
content data stored in the distal cache, the distal URL identifier
is stored in the forwarding table in reference to the destination
IPA,
 receiving from the user browser a source URL identifier,
 matching the source URL identifier to the destination URL
identifier,
cross referencing at the proximal IPA in the forwarding table the
stored distal URL identifier with the destination IPA,
 ~~distal URL identifier~~ transmitting the distal URL identifier
to the destination at the destination IPA, and
transmitting from the destination at the destination IPA the web
content data for retrieving the web content data from the distal
cache.

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1 13. (Currently Amended) The method of claim 12 further comprising
2 the step of,
3 repeating the all of the steps one or more times, the destination
4 is one or more intermediate cooperative web caches having a
5 respective one or more intermediate IPAs and respectively storing
6 the distal URL identifier with a respective next one of the one or
7 more intermediate IPAs and lastly the distal IPA, each of the one
8 or more intermediate IPAs being a location a next one of the one or
9 more intermediate cooperative web caches and lastly the distal IPA,
10 the one or more intermediate IPAs indicating next web hop locations
11 in transmitting the distal URL through the intermediate cooperative
12 web caches to the distal web cache, the last one of one or more
13 intermediate cooperative web caches referencing the distal URL to
14 the distal IPA for retrieving the web content data from the distal
15 cache.

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1 14. (Original) The method of claim 13 wherein the repeated
2 transmitting step,

3 the web content data is transmitting from the distal cache
4 through the one or more intermediate web caches and through a
5 proximal cache at the proximal IPA to the user browser.
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9 15. (Original) The method of claim 14 further comprising the step
10 of,

11 assigning the proximal cache and one or more intermediate caches
12 and the distal cache to one or more groups of cooperative caches in
13 a network of grouped cooperative web caches, the web content data
14 being transmitted from a first one of the one or more intermediate
15 caches to a second one of the one or more intermediate caches, the
16 first one and second one of the one or more intermediate caches
17 being within the same group.
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